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SWEDEN

VIA TELEFAX IN ADVANCE

June 14, 2004

PCT-Application PCT/IB02/02173

Applicant / Owner: Nokia Corporation

Title: METHOD AND DEVICE FOR BACKGROUND
MONITORING...

Our Ref.: 51011 WO (KG/BK)

In Response to the Official Communication Following Rule 66, Dated April 19, 2004

I. New Documents

We submit herewith an amended set of new claims 1 to 20.

The independent claim 1 has been redrafted on the basis of the disclosure of the amended claims 1, 2 (of March 2003) and the specification on page 9, lines 15-20 and 32-33. The claim 1 has been clarified by underlining that only the first audio signal is continuous.

The new dependent claims 2 to 10 are disclosed in the amended claims 3 to 11.

The new method claim 11 is disclosed in amended claims 12, 13 and the specification on page 9, lines 15-20 and 32-33.

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The new method claims 12 to 17 are disclosed in the amended claims 14 to 19.

The claims 18 to 20 are disclosed in amended claims 20 to 22.

The amended claims 2 and 13 (of March 2003) have been deleted.

We kindly ask that the further adaptation of the specification to the newly filed claims may be deferred until allowable claims have been achieved.

II. Object of the present invention

It is the object of the present invention to provide a mobile electronic device or a mobile phone which offers a possibility to record music or audio data, even if a phone call is to be made, and that is capable of recording from an audio source during active phone calls without disturbing the recording and with a possibility to monitor the recording during an active phone call with the same headset (see page 2, lines 3-9).

III. The invention as claimed

The present invention as claimed pertains to a mobile electronic device as claimed in new claim 1, and a method for recording an audio signal as claimed in new claim 10.

The mobile electronic terminal according to the claim 1 comprises a first audio component for providing a first continuous audio signal and a second audio component for providing a second audio signal, and an audio output for outputting an output audio signal, said audio output being connected to said first and second audio components. The mobile electronic device further comprises a mixer that is connected between said first and second audio component and said audio output for mixing said first continuous audio signal and said second audio signal to generate a mixed signal to be supplied to said audio output. The mobile electronic device of the present invention is further characterized in that said first audio component comprises a radio receiver and an audio recorder and is configured for recording an audio signal from said radio receiver and providing a monitor audio signal as said first continuous audio signal, without influencing the recorded audio signal from the radio receiver.

The method of the present invention is for mixing a first and a second audio signal with

different priorities in a mobile device, said device comprising a radio receiver, and a recorder. The method comprises receiving an audio signal via said radio receiver, recording said audio signal with said recorder, as a recorded signal, providing a record monitor signal of said radio program as a first continuous audio signal, receiving a second audio signal, mixing said first and said second audio signals according to a predetermined ratio of amplitudes, without influencing the recorded audio signal from the radio receiver, and providing said mixed signal for output.

That is, the present invention provides a device and a method to enable a user to perform recording operations and to take or make telephone calls simultaneously without influencing the recorded audio signal.

VI. Novelty

The examiner has not objected to novelty of the amended claims 2-7 and 13-22. The characterizing feature of claim 2 has been incorporated in the new claim 1. The characterizing feature of claim 13 has been incorporated in the new claim 10. Therefore, it is presumed that the new claims 1 and 11 actually on file are considered as being novel.

None of the cited documents discloses a possibility to record an audio signal. Additionally, the cited document D1 does not even disclose any radio receivers for receiving a radio program. Thus, the new independent claims 1 and 11 are novel over the cited document. Thus, these new independent claims disclose clearly novel and inventive solutions over the cited document.

VII. Inventive step

The examiner objected to an inventive step of claims 2-7 and 13-22 as being suggested with regard to the cited document D1 alone and alleges that the features of claim 2 and 13 would differ from D1 only in that D1 fails to comprise an audio recording means.

To support his opinion the Examiner states that to assess the presence of an inventive step the problem to be solved would reside in incorporating an audio recording function into a mobile electronic circuit. The Examiner refers to the fact that portable recording units are commonly known, and that it would therefore be obvious to implement such a functionality into a mobile audio device, such as disclosed in D1.

The starting point of the argumentation used by the examiner shows directly that an ex post consideration is used, as the problem to be solved by the present invention is not to incorporate an audio recording function into a mobile electronic circuit. To assess the presence of an inventive step of the subject matter of the new independent claims the question to be asked is if an artisan would implement a recorder device into a mobile terminal or telephone device as disclosed in one of the documents D1 to D3.

The answer is clearly no, as none of the cited documents discloses a device that requires a recorder functionality or may properly use recorder functionality.

The device disclosed in D1 discloses only a music replay means, and not a radio receiver for receiving a radio program. A music replay means according to claim 1 of D1 with a music storage part such as disclosed in the figures can not suggest the subject matter of the present invention, as the replayed music already originates from a stored music information. That is, as the music data are already present in the form of stored data there can be no reason to record the replayed music. In D1 the replayed music and the received voice channel are provided with nearly the same priority, as both audio signals are mixed to a mixed signal.

The device disclosed in D2 discloses a radio broadcast receiver that can be provided with a radio broadcast receiver. D2 is directed to preventing that a user may miss an incoming call while listening to a radio program. D2 does not provide any precautions to prevent that a user can be disturbed while listening to music. That is, starting from D2 an artisan has no reason trying to implement a recorder into D2 as it is already expected that the audio signal from the radio receiver will be disturbed e.g. by incoming phone calls.

Similar to the device disclosed in D2, a music replay device that is incorporated in or connected to a mobile telephone as disclosed in D3 does also not suggest the subject matter of the present invention as claimed in claim 1 or 11 because the audio signal is also interrupted when an incoming call is detected. Thus, as in the case of D2, this fact again teaches away from implementing a recorder and especially a radio recorder in the device according to D2 or D3.

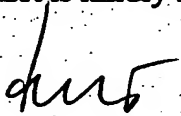
The documents D2 and D3 show more similarities, as in both documents the music replay device or the radio broadcast receiver can be integrated into a battery pack of a cellular phone. The disclosures of D2 and D3 are directed to ensure that a user notices any incoming telephone call, while D1 aims to ensure that a user can enjoy an audio signal.

The combination of broadcast radio receiver (such as in D2), an audio recorder and an audio mixer (as in D1) requires an artisan to combine the disclosure of two documents and additionally the knowledge of an artisan, and is therefore to be regarded as requiring an inventive step.

The fact that an invention can easily be understood in an ex post consideration and that the advantages are readily to comprehend does not imply that it is not inventive. The question to be answered is if the disclosure of one the documents D1 to D3 would suggest an artisan to implement a radio program receiver and an audio recorder into a mobile terminal device, and to use a monitoring audio signal to be mixed with the received audio signal of an incoming phone call. In our opinion the combination of a radio program receiver, a recorder and a monitoring signal with the fact that the recorded audio signal is not influenced neither by the monitoring signal nor by incoming (or outgoing) telephone calls is not suggested by the document D1 alone or in combination with one of the documents D2 or D3.

VIII. Requests

In view of the above arguments it is assumed that the Examiner's objections have been overcome, and it is therefore respectfully submitted that the new set of claims 1 to 20 as presently on file are acknowledged as being inventive. Therefore, issuance of a favorable IPER is kindly requested.



Dr. Thomas Kurig
(Patent Attorney)

Enclosure

Set of new claims 1-20, 3-fold

International Application No. PCT/IB2002/02173
Applicant: Nokia Corporation et al
Date: June 11, 2004

New Claims

1. Mobile electronic having a first audio component for providing a first continuous audio signal and a second audio component for providing a second audio signal, and an audio output for outputting an audio signal, said audio output being connected to said first and second audio components, and a mixer, connected between said first and second audio component and said audio output for mixing said first continuous audio signal and said second audio signal to generate a mixed signal to be supplied to said audio output, characterized in that said first audio component comprises a radio receiver and an audio recorder configured for receiving radio programs and recording from said radio receiver and providing a audio monitor audio signal as said first continuous audio signal, without influencing the recorded audio signal from the radio receiver.
2. Mobile electronic device according to claim 2, wherein said audio recorder comprises a component generating a signal indicative of the recording state of said audio recorder.
3. Mobile electronic device according to claim 3, characterized in that said mixer comprises a component to receive a signal indicative if one of said audio signals of said audio components is actually recorded or not, and a component for adjusting the ratio of amplitudes in accordance with said received signal.
4. Mobile electronic device according to anyone of the preceding claims, wherein at least one of said audio components comprises an input terminal for an external audio signal.
5. Mobile electronic device according to anyone of the preceding claims, further comprising a component for determining the amplitudes of said first audio signal and said second audio signals.
6. Mobile electronic device according to anyone of the preceding claims, wherein said mixer further comprises means for adjusting the ratio of amplitudes of said first and second audio signal in said mixed signal.

7. Mobile electronic device according to anyone of the preceding claims, wherein one of said audio components comprises an audio player.
8. Mobile electronic device according to anyone of the preceding claims, wherein one of said audio components comprises a mobile phone.
9. Mobile electronic device according to anyone of the preceding claims, wherein one of said audio components comprises a component for encoding/decoding audio signals.
10. Mobile electronic device according to anyone of the preceding claims, wherein said audio output comprises an audio connector for connecting headphones.
11. Method for mixing a first and a second audio signal with different priorities in a mobile device, said device comprising a radio receiver, and a recorder comprising:
 - receiving a radio program via said radio receiver,
 - recording said radio program at said recorder,
 - providing a record monitor signal of said radio program as a first continuous audio signal;
 - receiving a second audio signal;
 - mixing said first and said second audio signals according to a predetermined ratio of amplitudes, without influencing the recorded audio signal from the radio receiver; and
 - providing said mixed signal for output.
12. Method according to claim 11, further comprising generating a signal indicative of a proceeding recording operation.
13. Method according to anyone of claim 12, further comprising detecting a signal indicative of a proceeding recording operation, and mixing said first and second signals in accordance with said detected signal indicative of a proceeding recording operation.
14. Method according to anyone of claims 11 to 13, further comprising detecting a first and a second audio signal, prior to said step of mixing.
15. Method according to anyone of claims 11 to 14, further comprising determining the amplitudes of said first and second audio signal.

16. Method according to anyone of claims 11 to 15, further comprising decoding at least one of said first or second audio signals.
17. Method according to anyone of claims 11 to 16, further comprising encoding at least one of said first or second audio signals.
18. Computer program tool for executing said method for mixing audio signals in a mobile electronic device, comprising program code means for carrying out the steps of anyone of claims 11 to 17 when said program is run on a computer or an electronic device.
19. Computer program comprising program code means stored on a computer readable medium for carrying out the method of anyone of claims 11 to 17 when said program product is run on a computer or an electronic device.
20. Computer program product comprising program code means stored on a computer readable medium for carrying out the method for mixing audio signals in a mobile electronic device of anyone of claims 11 to 17 when said program product is run on a computer or electronic device.